REMARKS

Claims 1-21, 23-25, 27-43, 45 and 47-60 were pending in the present application, and claims 5-6, 9, 12-14, 17-21, 25, 27, 29, 31-34, 36-39, 41, 45, 47-52, and 54-60 are withdrawn from consideration. By virtue of this response, claims 12, 13, 15, 17, 18, 22, 23, 25, 27-29, 40-120 have been cancelled, claims 1, 6, 14, 16, 19, 24, 30, 34, and 36 have been amended, and new claims 121-132 have been added. Amendments to the claims and the new claims are fully supported at least by the claims as originally filed and no new matter has been added. Accordingly, claims 1-4, 7, 8, 10, 11, 16, 23, 24, 30, 35, and 121-132 are currently under consideration. Amendment and cancellation of certain claims is not to be construed as a dedication to the public of any of the subject matter of the claims as previously presented.

Objections

The amendment filed May 23, 2007 is objected to under 35 USC § 132(a) because it allegedly introduces new matter into the disclosure. In particular, the phrase "a header" is objected to. Without conceding that the application as filed fails to disclose support for this phrase, Applicants have deleted the phrase from the claims, thereby rendering the objection moot.

Rejections under 35 USC § 112

A. Claims 1-4, 7-8, 10-11, 15-16, 23-24, 28, 30, 35, 40, 42-43, and 53 stand rejected under 35 USC § 112, first paragraph, (as detailed in paragraph 8 of the Office Action) as allegedly failing to comply with the written description requirement. As indicated herein, Applicants have deleted the phrase "a header" from the claims, thereby rendering the rejection moot.

B. Claims 24 and 28 stand rejected under 35 USC § 112, first paragraph, (as detailed in paragraph 9 of the Office Action) as allegedly failing to comply with the enablement requirement.

Claim 24 has been amended to recite that the data mask comprises "a holographic data mask having a holographically recorded pattern associated with an information layer stored

therein." Accordingly, the claim now recites a holographic data mask having a holographically recorded pattern stored therein. The claim no longer covers "every conceivable structure" as asserted by the Examiner and the rejection should be withdrawn.

C. Claims 1-4, 7-8, 10-11, 15-16, 23-24, 28, 30, 35, 40, 42-43 and 53 stand rejected under 35 USC § 112, second paragraph, (as detailed in paragraph 11 of the Office Action) as allegedly indefinite for failing to particularly point out and distinctly claim the subject matter which regards as the invention. As indicated herein, Applicants have deleted the phrase "a header" from the claims, thereby rendering the rejection moot.

Rejections under 35 USC § 103

A. Claims 1-4, 7, 8, 10, 11, 23, 24, 28, 30, and 35 stand rejected under 35 USC § 103(a) as allegedly being unpatentable over the patent issued to Snyder et al. (U.S. Patent No. 6,064,586).

Applicants have amended independent claim 1 to recite a method for recording information to a holographic storage medium, comprising "illuminating a holographic master data mask ... wherein the holographic master data mask includes a holographically recorded pattern associated with an information layer that is divided into multiple data pages stored by polytopic multiplexing." Further, claim 1 is amended to recite that the holographic master data mask includes "a plurality of holographically recorded patterns associated with information layers stored by at least one multiplexing technique." Claims 24 and 30 are amended similarly to claim 1 as indicated herein. The amended features of using a holographic master data mask, and in particular, a holographic master data mask where the data pages of an information layer are stored therein by polytopic multiplexing and information layers are stored therein by a multiplexing technique, are fully supported and described by the application as filed, e.g., at least by paragraphs 30-35, as well as originally filed claims 16-19, 28, 29, 43, and 52.

Snyder fails to disclose a method or system for recording to a holographic storage medium using a holographic master data mask as recited. For example, Snyder discloses the use of SLM 66 for generating object beams (Figure 6 and col. 7, lines 37-54), but fails to disclose the use

of a holographic master data mask, let alone a holographic master data mask having multiple data pages stored therewith by polytopic multiplexing or multiple information layers stored therewith by a multiplexing technique. Moreover, there is no reasonable reason or suggestion for one to modify the disclosure of Snyder to include a holographic master data mask, let alone, a holographic master data mask as presently recited.

Accordingly, for at least these reasons, claim 1 (and similarly claims 24 and 30) is allowable over Snyder and the rejection must be withdrawn. Additionally, all claims depending from claims 1, 24, and 30 are allowable over Snyder for at least the same reasons.

B. Claims 1-4, 7, 10, 23, 24, 28, 30, 35, 43 and 53 stand rejected under 35 USC § 103(a) as allegedly being unpatentable over the patent issued to Blaum et al. (U.S. Patent No. 5,510,912).

Blaum fails to disclose a method or system for recording to a holographic storage medium using a holographic master data mask as recited by independent claims 1, 24, 30, and 43. For example, Blaum discloses the use of a page composer/SLM 30, including a two-dimensional array of shutters, for generating object beams (Figure 6 and col. 5, lines 57-61). Blaum fails, however, to disclose the use of a holographic master data mask, let alone a holographic master data mask having multiple data pages stored therewith by polytopic multiplexing or multiple information layers stored therewith by a multiplexing technique. Moreover, there is no reasonable reason or suggestion for one to modify the disclosure of Blaum to include a holographic master data mask, let alone, a holographic master data mask as presently recited.

Accordingly, for at least these reasons, claim 1 (and similarly claims 24 and 30) is allowable over Blaum and the rejection must be withdrawn. Additionally, all claims depending from claims 1, 24, and 30 are allowable over Snyder for at least the same reasons.

C. Claims 1-4, 7, 10-11, 23-24, 28, 30, and 35 stand rejected under 35 USC § 103(a) as allegedly being unpatentable over the patent issued to Guest et al. (U.S. Patent No. 4,318,581) in view of the patent issued to Snyder.

Guest fails to disclose a method or system for recording to a holographic storage medium using a holographic master data mask as recited by independent claims 1, 24, and 30. For example, Guest discloses a page composer 20, described at column 4, lines 43-62 as comprising two-dimensional arrays of light controlling devices such as electro-optic devices that rotate the polarization of light (e.g., an SLM). Guest fails, however, to disclose the use of a holographic master data mask, let alone a holographic master data mask having multiple data pages stored therewith by polytopic multiplexing or multiple information layers stored therewith by a multiplexing technique. Moreover, there is no reasonable reason or suggestion for one to modify the disclosure of Guest to include a holographic master data mask as recited.

Snyder fails to cure the deficiencies of Guest for at least the same reasons discussed above. For instance, Snyder discloses the use of SLM 66 for generating object beams (Figure 6 and col. 7, lines 37-54), and similarly fails to disclose the use of a holographic master data mask, let alone a holographic master data mask having multiple data pages stored by polytopic multiplexing.

Accordingly, for at least these reasons, claim 1 (and similarly claims 24 and 30) is allowable over the combination of references and the rejection must be withdrawn. Additionally, all claims depending from claims 1, 24, and 30 are allowable over the combination of references for at least the same reasons.

D. Claims 1, 8, 15, 16, 30, 40, 42, 43, and 53 stand rejected under 35 USC § 103(a) as allegedly being unpatentable over the patent issued to Hart (U.S. Patent No. 5,592,313) in view of the patent issued to Schehrer et al. (U.S. Patent No. 5,258,560) and Snyder.

The combination of references fails to disclose a method or system for recording to a holographic storage medium using a holographic master data mask as recited by independent claims 1, 30, and 43. At the very least, Hart fails to disclose or suggest 1) a holographic master data mask having multiple data pages stored by polytopic multiplexing, and 2) a plurality of information layers stored by at least one multiplexing technique.

In contrast to the recited features, Hart discloses producing holographic images, or a volumetric data set, of a physical system from a plurality of sequentially recorded two-dimensional images. (Hart, Col. 1, lines 8-14 and col. 5, lines 39-53; Abstract.) For example, Hart describes that when a hologram is "produced in accordance with the present invention...a three-dimensional representation of the object may be seen, affording the viewer full parallax and perspectives from all viewpoints." (Hart, Col. 31, lines 42-45.) Further, Hart discloses the method and system comprise "a spatial light modulator configured to sequentially project a plurality of two-dimensional images, for example a plurality of slices of data comprising a CT scan data set, into the object beam and on the film." (Hart, Col. 3, lines 59-65.)

Thus, Hart discloses producing viewable holograms from multiple two-dimensional images, but does not disclose recording data or data pages of a single layer or single two-dimensional image via polytopic multiplexing as recited. Further, there is no reasonable suggestion to modify the teachings of Hart (alone or in combination with Schehrer and Snyder) to divide the two-dimensional images into multiple data pages for multiplexing as recited, i.e., there is no reasonable suggestion for one to modify the disclosure Hart to record multiple data pages (or divisions of a single image) by polytopic multiplexing. Even if one were to arbitrarily divide "a layer of data into a plurality of pages" as asserted by the Examiner on page 12, there is no teaching, suggestion, or motivation to then record these arbitrarily taken data pages via polytopic multiplexing. In fact, this would appear to add additional steps to the method and system disclosed by Hart.

Further, Hart fails to disclose or reasonably suggest the recited features relating to storing multiple information layers via a multiplexing technique. Even though multiple images are recorded to the holographic material, the images are all recorded with the same reference beam, so that all of the images are superimposed and merged as one hologram on readout. (Hart, Col. 4, lines 11-14; Fig. 9). Accordingly, the multiple images are not stored via a multiplexing technique (and are not independently addressable layers, for example).

The addition of Schehrer and Snyder fails to cure the deficiencies of Hart. Schehrer is relied upon for disclosing that a data page comprises a plurality of pixels; however, even if Hart and Schehrer are properly combined (which Applicants do not concede), the combination fails to disclose or suggest modifying Hart to store an information layer including multiple data pages stored by polytopic multiplexing or multiple information layers stored via a multiplexing technique. Neither reference provides any reason for including such a feature. Further, as discussed herein, Snyder fails to disclose the use of a holographic master data mask, let alone a holographic master data mask having multiple data pages stored by polytopic multiplexing or multiple information layers stored via a multiplexing technique.

Accordingly, for at least these reasons, claim 1 (and similarly claims 24, 30, and 43) is allowable over the combination of references and the rejection must be withdrawn. Additionally, all claims depending from claims 1, 24, 30, and 43 are allowable over combination of references for at least the same reasons.

E. Claims 1, 4, 10, 11, 23, 24, 30, 43, and 53 stand rejected under 35 USC § 103(a) as allegedly being unpatentable over the patent issued to Edwards (U.S. Patent No. 6,538,776) in view the patent issued to Snyder.

Edwards fails to disclose a method or system for recording to a holographic storage medium using a holographic master data mask as recited by independent claims 1, 24, 30, and 43. For example, Edwards discloses illuminating an SLM 20 as described at column 3, lines 35-44 and shown in Fig. 1. Edwards fails, however, to disclose the use of a holographic master data mask, let alone a holographic master data mask having multiple data pages stored by polytopic multiplexing. Moreover, there is no reasonable reason or suggestion for one to modify the disclosure of Edwards to include a holographic master data mask as presently recited.

Snyder fails to cure the deficiencies of Edwards for at least the same reasons discussed above. For instance, Snyder discloses the use of SLM 66 for generating object beams (Figure 6 and

col. 7, lines 37-54), and similarly fails to disclose the use of a holographic master data mask, let alone a holographic master data mask having multiple data pages stored by polytopic multiplexing.

Accordingly, for at least these reasons, claim 1 (and similarly claims 24, 30, and 43) is allowable over the combination of references and the rejection must be withdrawn. Additionally, all claims depending from claims 1, 24, 30, and 43 are allowable over the combination of references for at least the same reasons.

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CONCLUSION

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the event the U.S. Patent and Trademark office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to Deposit Account No. 03-1952 referencing docket no. **495812004700**. However, the Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

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Respectfully submitted,

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